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ABSTRACT

This study examined the effectiveness of a new skills training program designed to increase nurse aides' knowledge of behavior management. The training program, designed as five 90-minute group learning modules, was implemented in two Western Pennsylvania nursing homes over a 5-month period. Topics covered within the training program included basic principles of behavioral management as they apply to depressed, disoriented, and agitated resident behaviors. Performance on eight mental health questionnaires, administered serially as pretests and posttests for each of the training modules, was used to evaluate nurse aides' acquisition and retention of this new knowledge. For three of the five training sessions, there was a significant pretest to posttest improvement (p .0001). In addition, one test was administered twice: once at the beginning of the training program and again at the end of the training program, 4 months later. There was a significant improvement on this measure (p .0001). Several of these test scores were also found to correlate significantly with caregiver self-ratings of their tendency to use behavior management skills in caregiving. The results have implications for improving the caregiving knowledge of nursing assistants, improving actual caregiving behaviors, and determining the limitations of inservice education in the nursing home context. (Author/NB)

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Evaluation of a Behavior Management Training Program for Nursing Home Caregivers

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Abstract

The present study examined the effectiveness of a new skills training program designed to increase nurse aides' knowledge of behavior management. The training program, designed as five one-and-a-half hour group learning modules, was implemented in two Western Pennsylvania nursing homes over a five month period. Topics covered within the training program included basic principles of behavioral management, as they apply to depressed, disoriented and agitated resident behaviors. Performance on eight mental health questionnaires, administered serially as pretests and posttests for each of the training modules, was used to evaluate nurse aides' acquisition and retention of this new knowledge. For three of the five training sessions, there was significant pretest to posttest improvement ($p < .0001$). In addition, one test was administered twice: once at the beginning of the training program, and again at the end of the training program, four months later. There was significant improvement on this measure ($p < .0001$). Several of these test scores were also found to correlate significantly with caregiver self-ratings of their tendency to use behavior management skills in caregiving. The results are discussed in terms of their implications for i) improving the caregiving knowledge of nursing assistants, ii) improving actual caregiving behaviors, and iii) the limitations of inservice education in the nursing home context.

Evaluation of a Behavior Management Training Program for Nursing Home Caregivers

Nurse aides employed in long term care are responsible for 80-90% of all direct patient care. These employees, however, are often the least well trained personnel in the facility (Gutheil, 1985; Heine, 1986). Consequently, nurse aides are often inadequately prepared to meet many of the needs of the residents they care for, especially the mental health needs of the elderly in nursing homes (Canar & Johnson, 1986; Burgio & Burgio, 1986). This is a problem of some magnitude, particularly since nursing homes have become the major receiving site for mentally ill elderly (Smyer, Brannon & Cohn, 1988).

Previous research has suggested that behavior management may be one effective means of dealing with a range of problem behaviors among institutionalized elders (Patterson & Jackson, 1980), including immobility, (Burgio, Burgio, Engel, & Tice, 1986), urinary incontinence, (Burgio, Whitehead, and Engel, 1985; Schnelle, Traughber, Morgan, Embry, Binion, & Coleman, 1983), and mental health issues such as depression (Hussian & Davis, 1985; Thompson, Gallagher, & Breckenridge, 1987) and dependency (Baltes, et al 1983; Baltes & Reisenzein, 1986; Baltes & Zerbe, 1976; Block, Boczkowski, & Hansen, 1987). Despite its potential effectiveness in the institutional context (Oberleder, 1976), behavior management does not appear to be frequently used with nursing home residents (Guy & Morice, 1985).

Due to the paucity of research with nurse aides themselves (see Wisocki, 1984), it is an unanswered question whether or not these caregivers, who deal most directly with elderly residents demonstrating these problem behaviors, can be trained to use behavior management techniques. While there are some

indications that inservice training may be used to upgrade the caregiving skills of nurse aides (e.g., Department of Health, Education and Welfare, 1977; Lindeman, 1985; Panneton, Moritsugu & Miller, 1982), few empirical studies have focused on the effectiveness of training nurse aides or other paraprofessionals, regardless of content domain. For instance, Boyer, Bresloff, and Curley (1986) described a program designed to train nurse aides in the psychosocial care of elderly nursing home residents, but provided no empirical support for the effectiveness of its outcome.

There is some evidence to suggest that, within institutional contexts, caregivers can use behavior management to control mental health problems. Priddy, Teitelman, Kivligham, & Fuhrman (1982) reported successful outcomes for elderly patients when they introduced behavior management strategies designed to reduce levels of learned helplessness in the hospitalized elderly. Thompson, Gallagher, Nies, & Epstein (1983) found a behavior management program useful in managing violent behavior among the hospitalized elderly. This study, like that of Priddy, et al (1982), involved hospital staff. It is not clear to what extent either sample included nurse aides. Thus, the effectiveness with which nursing assistants could be trained to use behavior management strategies with elderly nursing home residents can only be extrapolated from data gathered with other samples.

In one of the few empirical investigations of nurse aides' use of behavior management, Chartock, Nevins, Rzetelny, & Gilberto (1988) implemented a multidisciplinary training program to increase knowledge and skill in dealing with confusion and depression in elderly nursing home residents. Assessment of the effects of their modular training program suggested that training had significantly increased nurse aides' knowledge levels. In addition, the results

suggested that supervisors ratings of nurse aides' job performance in several training-related domains had increased as a function of training. It is not clear to what extent supervisors may have been blind to the intervention. Therefore, these generally positive results must be interpreted with some caution. The study is limited additionally by both the absence of a control group and uncontrolled training site differences.

The present paper presents preliminary findings from the Nursing Home Caregiver Intervention Project at the Pennsylvania State University. Under a grant from the Retirement Research Foundation, the researchers have recently developed and implemented a 5-part modular skills training program designed to increase nurse aides' knowledge and skill in the use of behavior management techniques with mental health problems presented by the institutionalized elderly. This skills training program is specifically aimed at three mental health problems which have previously been documented as the most problematic and frequent among nursing home elders: disorientation, depression, and agitation (Kramer, 1985; Parmalee, Katz, & Lawton, 1989; Smyer, Cohn, & Brannon, 1988).

Methods

Sites

Data for this paper were collected in connection with a larger nursing home study sponsored by the Retirement Research Foundation. The analyses to be reported here focus on two long term care facilities (hereafter referred to as Site One and Site Two), each employing 40-60 nursing assistants. These nursing homes were among four such facilities selected by a series of progressive

sampling steps (see Brannon, 1988 for a description of this process). The final sites in Western Pennsylvania were matched on a set of organizational variables, including unionization status, levels of care, and comparable staff mean scores on an earlier administration of the Job Diagnostic Survey (Brannon et al, 1988a). All nursing assistants in each facility were encouraged to attend a five-session Skills Training Program. Although attendance was considered mandatory in both sites, there were attendance discrepancies in that mandatory attendance was more closely supervised at Site Two. At Site One, 58% (n=29) of the nursing assistants employed by the facility during the intervention period attended at least 4 of the 5 sessions offered. At Site Two, 67% (n=48) of the nursing assistants attended at least 4 sessions.

Sample

The sample of nursing assistants from whom data is analyzed in the present paper included 4 males and 103 females (complete demographic data is missing for 9 subjects). The mean age of the nursing assistants in the two intervention sites was 35.3 years (S.D. = 10.82 years, range = 18-62 years). The average length of tenure as a nursing assistant in these sites was 38.0 months (S.D. = 41.7 months, range = 1-228 months). The mean years of schooling for the nursing assistants was reported to be 11.99 years (S.D. = 1.09 years, range = 9-16 years).

Intervention

Five 1-&-1/2 hour classes, or modules, were provided at one month intervals, in each nursing home. At each intervention site, each module was

presented four or five times over two days, in order to accommodate staff on all shifts. In addition, the trainers reviewed the materials with supervisory staff each month to encourage maximum administrative support for the use of the skills taught. The same class was taught at Site Two 2 weeks after it had first been taught at Site One. This order was never varied. Two trainers, both Registered Nurses with advanced degrees, and with experience in small group training, conducted the classes. Instruction followed an instructional protocol supplemented by notebooks, overheads, examples, and interactive discussion of cases; all materials were designed by the trainers. (Note 1). The topics for each modules are listed below:

Module One: "Introduction to Behavior Management"

Module Two: "Dealing with Disorientation"

Module Three: "Dealing with Depression"

Module Four: "Decreasing Agitated Behavior"

Module Five: "Using Behavior Management in our Lives"

Each class presented i) behavioral management principles, ii) ideas for the application of behavioral management principles to deal with problem behaviors displayed by some residents, iii) interactive application of behavioral management content to specific on-site cases. Following each class, nursing assistants were encouraged to read the notebooks they had received, and to do structured on-the-job homework exercises. The notebooks reviewed class content and provided exercises, puzzles and concept definitions. Participation, both in class and by doing homework, was encouraged by the use of token incentives. Tokens were later entered into a raffle prize draw.

Design and Procedure

Each of the first four modules used a pretest-posttest design. When subjects entered the session, they received a pretest. After all subjects had completed the pretest, the content of that module was taught. Immediately following the class, all subjects received a posttest which contained new items similar to those in the pretest. Subjects did not receive feedback on any aspect of their test performance. The same test was always used as a pretest or a posttest; the order of administration was never varied.

In the fifth module, subjects again received the Module One pretest as a pretest, and they received no posttest. In lieu of a Module Five posttest, nursing assistants completed a detailed program evaluation form. A design schematic is outlined in Figure 1.

Insert Figure 1 about here

Measures

Eight tests were designed for the present study, two for each of Modules One through Four. The research team (including one PhD and four graduate students, all in the field of Human Development and Family Studies) generated four pools of items, one pool for each module. Group consensus was used to

select 20 or 21 items from that pool for a pretest; another 20 or 21 items were included in a posttest for that module. Rules governing the selection of items were as follows: i) linguistic simplicity and clarity, ii) relevance to the content of that specific module (i.e., items for Module Two needed to pertain to disorientation, not depression), and iii) each pretest item needed to be matched with a posttest item that was similar in structure and content.

The tests contained items pertaining to both behavior management, as well as the specific problem behaviors being studied. Each test contained approximately equal numbers of True-False and Multiple Choice items. The True-False items focused more heavily on specific problem behaviors, while the multiple choice items referred to one or two briefly presented vignettes. The vignettes described fictional residents who presented specific problem behaviors.

Item analysis using data from two pilot sites was used to identify unclear items; the final iteration of the eight tests (the tests which were used at these experimental sites) included some original, some reworded and some new items. No prior psychometric data was therefore available for the use of these tests. The Appendix to this report presents the Cronbach's alpha coefficients obtained for each measure. Cronbach's alpha expresses the mean correlation of each item with the test total, and is therefore an estimate of the internal consistency of a measure. The appendix also presents the intercorrelations of the various test scores. Most of the correlations were significant (26/36 of cells).

The program evaluation form explored three domains: i) the appeal, helpfulness, and interest of the modules; ii) an 8-item, Likert-type self-report measure, asking the nurse aides to rate the frequency with which

they applied behavior management principles to residents before and after the training program; and iii) a self-report of their completion of optional between-class reading and writing assignments.

Results

Overall knowledge improvement

Overall knowledge improvement was assessed by comparing individuals' performance on the Module One pretest to their performance on the same measure given at the end of the training program (i.e., the Module Five pretest). There was significant mean improvement: The mean change was 10.32% (S.D. = 13.16%, $t(67) = 6.47$, $p < .0001$). Figure 2 graphically represents this overall mean gain.

Insert Figure 2 about here

Within-session gains

For each module, pretest and posttest scores were compared. Table 1 presents the mean score (percent correct) for all nine test administrations.

There was significant improvement within Module One (mean change = 12.52%, S.D. = 12.68%, $t(91) = 9.47$, $p < .0001$), as well as within Module Three

(mean change = 8.58%, S.D. = 13.15, $t(73) = 5.61$, $p < .0001$) and Module Four (mea change = 14.17%, S.D. = 12.23%, $t(65) = 9.41$, $p < .0001$). Figure 3 graphically presents the mean performance levels at each testing.

Insert Table 1 and Figure 3 about here

Relationship between training gains and caregiving behavior

The program evaluation form asked respondents to rate their caregiving performance, prior to the training program (PAST), and at the end of it (CURRENT), on four dimensions: tendency to look for environmental triggers of problem behaviors, tendency to interpret problem behaviors as learned, tendency to prompt or teach new behaviors to residents, and tendency to reinforce desirable resident behaviors. Each caregiving performance dimension was self-rated on a Likert-type scale ranging from 1 (never) to 10 (always). Scores across the four dimensions were summed, and the summed PAST caregiving performance scores were compared to the summed CURRENT performance scores.

The mean PAST caregiving performance score was 21.5 (S.D. = 7.27), while the mean current caregiving performance score was 29.7 (S.D. = 5.72). This is a significant increase: $t(73) = 8.66$, $p < .0001$.

The correlations of these perceived caregiving performance scores with actual module test scores was examined. Table 2 displays these bivariate correlation coefficients.

Insert Table 2 about here.

Discussion

The results of the present investigation indicate a significant improvement in caregiver knowledge as a function of the training program employed. This improvement suggests that nurse aides can acquire new knowledge relevant to their care of elderly residents.

Initial psychometric evaluation of the measures used suggested both strengths and weaknesses to the measurement approach. While the internal consistency of the measures can be described as only low to moderate, the substantial intercorrelations among measures suggest that the measures are, in

fact, related (and may therefore be measuring the same latent constructs). The absence of high internal consistencies is not disturbing if one hypothesizes that behavioral management knowledge is indeed multidimensional.

There was significant improvement in three of the four modules in which within-session change was assessed: Module One (Introduction to Behavior Management), Module Three (Dealing with Depressed Behaviors) and Module Four (Reducing Agitated Behaviors). The absence of a training effect for Module Two is somewhat surprising, although the relatively high mean initial performance of nurse aides at the Module Two pretest (65.8 % correct) may suggest that a ceiling of performance had been reached by the aides. Important caveats to the interpretation of these within-session changes must be stated: the tests used were new, and unstandardized. Thus, the extent to which varying reliabilities and validities, as well as difficulty levels, account for some of the fluctuations observed is not clear.

A clearer indicator of knowledge gain may be found in the significant overall training gain. When the same test (Module One pretest) was given at the beginning of the program, and at the completion of the program, there was a significant improvement on the second administration of the test relative to initial performance. This assessment controls for differences in test difficulty and reliability, since the same test was used as both a pretest and a posttest. It is also interesting to note that the alpha reliability of this measure increased from .44 to .54 . This suggests that the training may have improved the interconnectedness of the relevant concepts in the minds of the nurse aides. The higher internal consistency of the measure at its second administration may therefore suggest that the training had taught the subjects a more coherent pattern of thinking (and perhaps of responding) to resident

behavior problems. Of course, some of the performance gain may be attributable to retest effects (performance improvement as a function of practice) and decreased situational anxiety (after repeated positive interactions with the trainer). Importantly, however, these performance factors may also be important benefits of the training program. In this era of competency testing and mandatory training for nursing assistants (Smyer, Spore, & Cohn, Note 2), training that helps to reduce employee resistances to inservice education may have great value.

Perhaps the most promising result obtained was the finding of a positive relationship between session-mastery test performance and CURRENT caregiving performance. For the present study, the only indicator of caregiving performance used was a short self-rating inventory, administered retrospectively. Thus, important cautions must be used in interpreting the significant gain in self-reported caregiving performance (e.g., social desirability response set, high motivation levels associated with an enjoyment of the training program). Nevertheless, to the extent that these performance ratings were modestly yet significantly correlated with test scores (on which subjects never received feedback), these results serve as a preliminary indication that nursing assistants may have altered their caregiving performance as a function of training. The directionality of the correlations obtained suggests an interesting trend: all of the correlations between test performance and ratings of PAST performance were negative, while the correlations between test performance and ratings of CURRENT performance were positive (although not all correlations were significant). This suggests that what may have been most affected by the training was caregiver's awareness of their own performance. Thus, those who scored highest on the knowledge

measures (i.e., by extrapolation, those who had learned the most about behavior management) were most aware of the degree to which their pre-training caregiving performance was lacking in behavior management strategies. Consequently, these subjects were most likely to rate their pre-training behavior management performance as low. Similarly, those who scored highest on the knowledge measures also appeared to be most aware of the usefulness of behavior management in dealing with residents; the positive correlations between knowledge levels and current caregiving performance ratings suggests that high-scorers on the session-mastery tests may have been most likely to integrate behavior management strategies into their current caregiving.

Of course, these interpretations are only tentative. Future analyses, using data collected within this study, will examine the relationship between other indicators of knowledge gain and more objective indicators of job performance (e.g., supervisor ratings, experimentally blind behavioral observations); future analyses will also include a control group for comparison. While further investigation is needed before more conclusive statement can be made about the efficacy of this training program. It must be stated that the finding of any significant improvement within the constraints of inservice education in the nursing home context is impressive. Inservice education has not typically been a high priority in the nursing home setting (Chartock, et al, 1988); it is difficult to get much of a commitment to it. Thus, any practically useful training program for nursing homes must be both brief and infrequent. For example, the training design used in the present study was both short and infrequent; subjects received only a total of seven-and-a-half hours of training, only five training sessions, and the modules were each separated by a one-month delay. Despite the brevity of the

training, however, this preliminary assessment suggests it has been useful. This is perhaps the most encouraging result, because it suggests that the training may be both effective and practical--important considerations if the training is to find more widespread use in the future.

Appendix

Table A1.

Cronbach's alpha coefficients for training pretests and posttests.

Test	# of items	alpha
Module 1 pretest	21	.44
Module 1 posttest	21	.63
Module 2 pretest	20	.51
Module 2 posttest	20	.16
Module 3 pretest	20	.45
Module 3 posttest	20	.53
Module 4 pretest	20	.22
Module 4 posttest	20	.52
Module 5 pretest (readministered Module 1 pretest)	21	.54

Table A2.

Intercorrelations of all training pretests and posttests[a]

	Mod 1 pre	Mod 1 post	Mod 2 pre	Mod 2 post	Mod 3 pre	Mod 3 post	Mod 4 pre	Mod 4 post	Mod 5 pre
Mod 1 pre	1	.57 ****	.38 ***	.30 **	.40 ***	.15	.23	.33 **	.42 ***
Mod 1 post		1	.38 ***	.46 ****	.57 ****	.42 ***	.33 **	.52 ****	.67 ****
Mod 2 pre			1	.20	.34 **	.13	-.01	.36 **	.32 **
Mod 2 post				1	.45 ****	.22	.23	.28 *	.52 ****
Mod 3 pre					1	.37 **	.15	.27 *	.58 ****
Mod 3 post						1	.23	.41 **	.25
Mod 4 pre							1	.47 ****	.45 ***
Mod 4 post								1	.52 ****
Mod 5 pre									1

* p < .05
** p < .01
*** p < .001
**** p < .0001

[a] Correlations reported are pairwise; all nonmissing value pairs for each pair of variables were used.
This means that some correlations were computed using more observations than others

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Table 1.

Mean Percent correct for module pretests and posttests

Test	Mean % Correct	Standard Deviation (%)
Module One pretest	56.9	12.7
Module One posttest	69.5	14.2
Module Two pretest	65.8	13.7
Module Two posttest	67.3	10.3
Module Three pretest	67.0	12.1
Module Three posttest	75.1	11.9
Module Four pretest	52.6	10.9
Module Four posttest	66.5	12.6
Module Five pretest (same as Module One pretest)	68.0	13.0

Table 2.

Correlation of self-rated behavioral caregiving performance with training test performances.[a]

Training Test Performance	Self-rated behavioral caregiving performance	
	PAST	NOW
Mod 1 pretest	-.03	.38**
Mod 1 posttest	-.27*	.28*
Mod 2 pretest	-.30*	.15
Mod 2 posttest	.02	.28*
Mod 3 pretest	-.18	.11
Mod 3 posttest	-.13	-.11
Mod 4 pretest	-.07	.13
Mod 4 posttest	-.18	.34**
Mod 5 pretest	-.20	.40****

*p < .05
**p < .01
***p < .001
****p < .0001

[a] Note: Correlations reported are pairwise; all nonmissing pairs of values for each pair of variables were used. This means that some correlations were computed used more observations than others.

Notes

1. Plans are currently underway to publish the training materials used in the present study. More detailed description of the training, and of publication plans, may be obtained by contacting Dr. M. D. Cohn, The Nursing Home Project, Health and Human Development Building, The Pennsylvania State University, University Park, Pa, 16802

2. Smyer, M. A., Spore. D. L., & Cohn, M. D. Assessing nurses' aides' knowledge of behavioral approaches to mental health problems. Unpublished manuscript, November, 1988. College of Health and Human Development, The Pennsylvania State University.

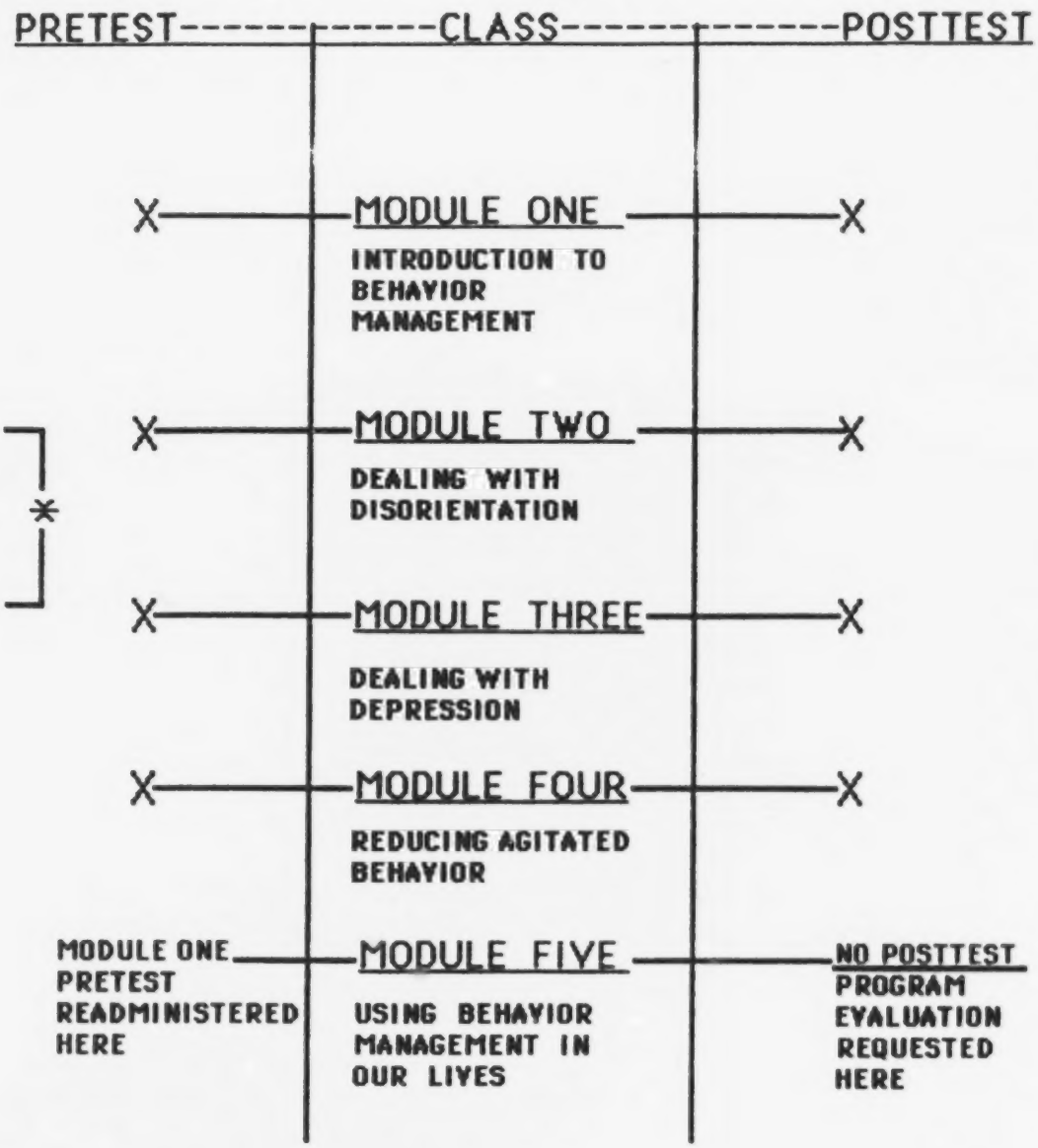
Figure Captions

Figure 1. Design schematic, Skills Training Modules.

Figure 2. Session Mastery scores, Overall change.

Figure 3. Session Mastery scores, within-session change.

FIGURE 1. A SKILLS TRAINING PROGRAM FOR NURSING ASSISTANTS: COURSE STRUCTURE



* NOTE: ONE MONTH ELAPSED BETWEEN CLASSES SUBJECTS RECEIVED READING AND WRITTEN HOMEWORK ASSIGNMENTS BETWEEN CLASSES

FIGURE 3

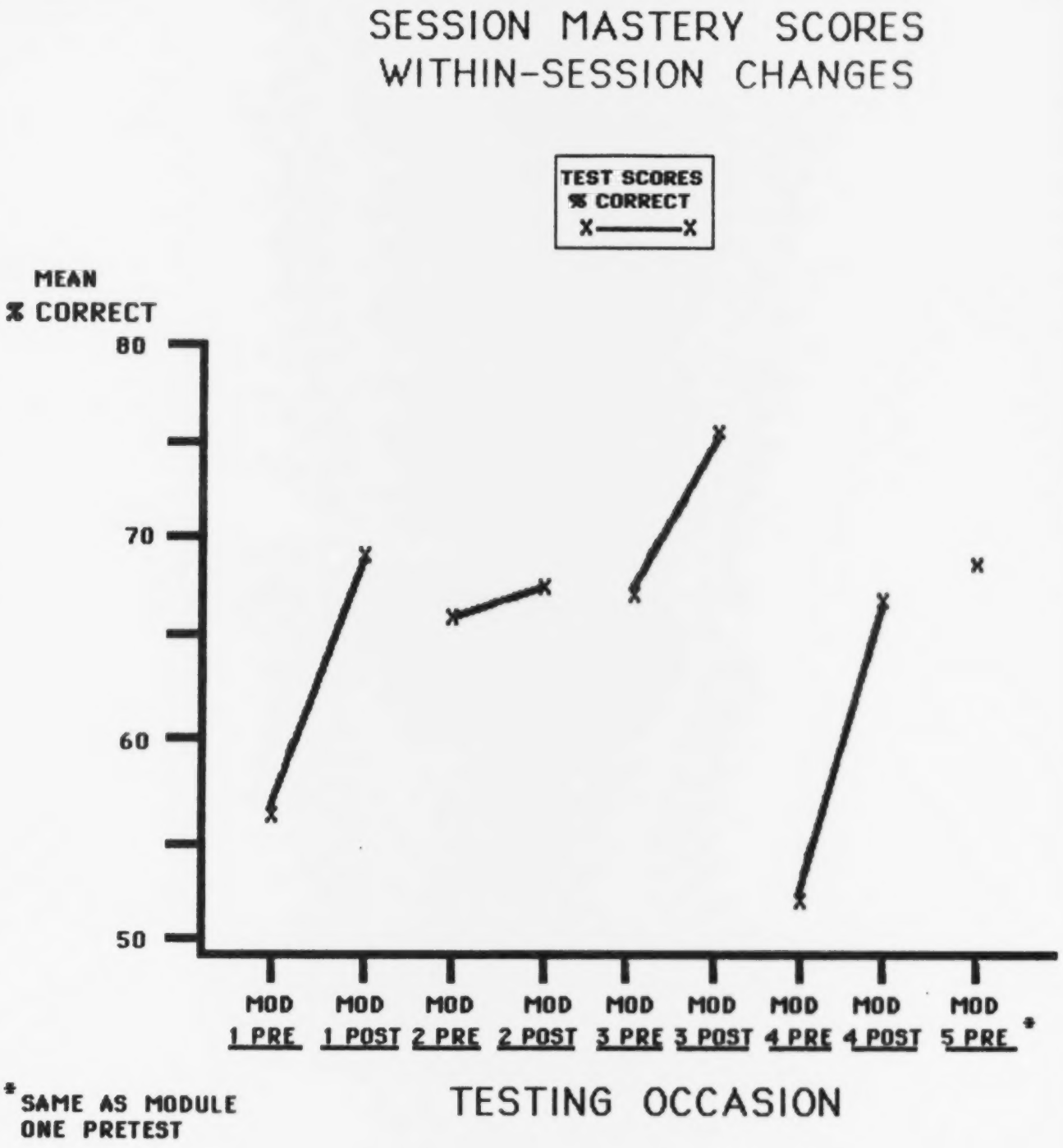
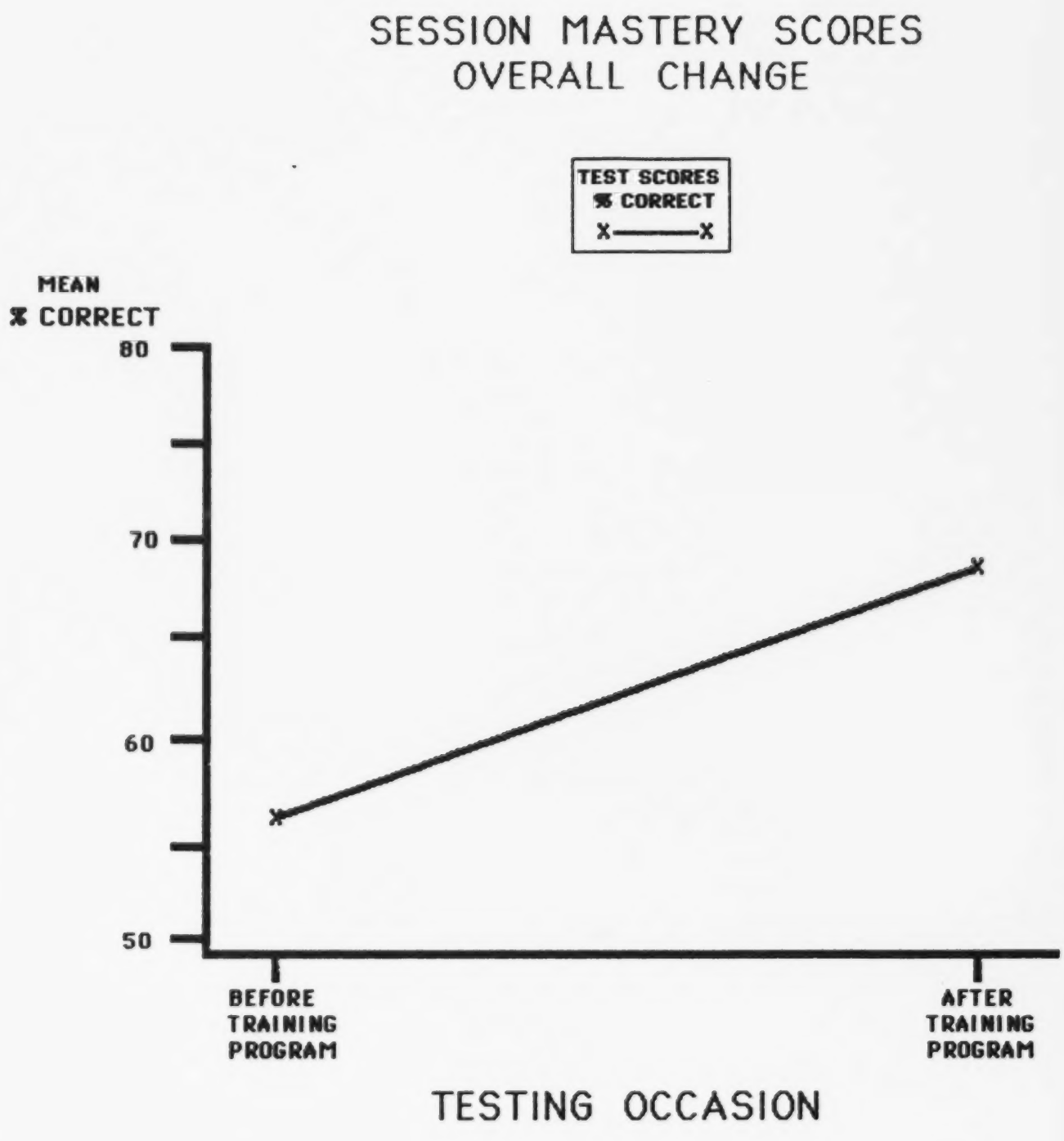

SESSION MASTERY SCORES
WITHIN-SESSION CHANGES
TEST SCORES
% CORRECT
MEAN
% CORRECT
80
70
60
50
MOD 1 PRE
MOD 1 POST
MOD 2 PRE
MOD 2 POST
MOD 3 PRE
MOD 3 POST
MOD 4 PRE
MOD 4 POST
MOD 5 PRE *
TESTING OCCASION
* SAME AS MODULE ONE PRETEST

FIGURE 2.


SESSION MASTERY SCORES
OVERALL CHANGE
TEST SCORES
% CORRECT
X——X
MEAN
% CORRECT
80
70
60
50
BEFORE
TRAINING
PROGRAM
AFTER
TRAINING
PROGRAM
TESTING OCCASION